

FLOW METER

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**IMPROVING QUALITY OF
LIFE AND ENHANCING
SUSTAINABLE ECONOMIC
DEVELOPMENT**

REFLECTING ON THE FIRST HALF OF 2019

UMGENI
WATER • AMANZI

A white ceramic mug with a blue logo featuring the word 'UMGENI' above a stylized wave and 'WATER • AMANZI' below it. The mug is on a white saucer. To the right of the saucer, a pair of black-rimmed glasses is resting on the wooden table. The background is a blurred wooden table surface.

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THE DEPUTY MINISTER OF WATER AND SANITATION VISITS LOWER TUGELA



The Chairman of the Board, the Chief Executive and the Executives of Umgeni Water hosted the Deputy Minister of Water and Sanitation, Ms. Pamela Tshwete at Lower Thukela Bulk Water Scheme, which is one of Umgeni Water's state of the art projects situated at Mandeni. The visit was held on the 10th of January 2019. The purpose of the visit was mainly to obtain a first-hand report on the progress of the scheme, and monitor the water service provision to the people of Mandeni and surrounding areas who benefit from the scheme. The function was graced by a number of Mayors, Councillors

and a good turnout of the local community members within the area. We were honoured by the Deputy Minister's decision to select Umgeni Water to conduct a study into the impact of rural projects, such as the Lower Thukela Scheme, on communities and local economies. We hope the Deputy Minister's visit will give impetus to the provision of additional grant funding for development of other rural schemes so that more communities and households will have access to safe drinking water. The Lower Thukela system comprises of ultra-modern infrastructure that was constructed at a cost of

R1,6 billion through funding from Umgeni Water and the Department of Water and Sanitation. At this stage, it represents one of the largest investments in bulk water abstraction, treatment and delivery in KwaZulu-Natal. The Deputy Minister also acknowledged the good work that is being done in securing water services for the North of the Thukela River through the proposed Phase 2 of LTBWSS. The second phase is presently in detailed design and, when constructed, will double the capacity of Phase 1 from 55MI/d to 110MI/d.

MEET THE NEW EXECUTIVE CORPORATE SERVICES



The Board, the Chief Executive, the Executive Management and the staff of Umgeni Water welcomes Dr. Siphon Manana, and we sincerely hope that Dr. Manana will have a wonderful stay with us. Dr. Siphon Manana assumed his position at Umgeni Water on 07 June 2019.

Dr. Manana brings with him a wealth of experience with over thirty (30) years in the Public Sector; where, he

held several senior positions, the most recent one being Acting Director-General, Department of Public Service and Administration, reporting directly to the National Minister. He was responsible for driving and managing results in five (5) branches of the department, included amongst others, Corporate Management (Internal Audit, Implementation of Business Processes on the SAP Platform; Human Resource Management including Labour Relations, Legal Services and facilities Management Contracts).

Dr. Siphon Manana holds a PhD in Development Management from the North-West University Potchefstroom (2016), a Masters in Business Administration (MBA) from the University of KwaZulu-Natal (2002), Bachelor of Arts Honours (HRD), from the University of Johannesburg (1997), and a Bachelor of Science from the University of Fort Hare (1990).

**WELCOME
DR. SIPHO MANANA.**



AWARD FOR UMGENI WATER AS TOP PERFORMER IN THE WATER SECTOR

Umgeni Water's splendid performance in consistent provision of safe drinking water at an affordable bulk tariff and customers' satisfaction with services provided was rewarded by Africa Professional Review (PMR) with an award. The award, made at a breakfast session in Durban, was also

in recognition of Umgeni Water's contribution to socio-economic development, together with its crucial role in the South African water sector. Umgeni Water has been described as a leader in the sector with significant investments and assets that allow it to implement its mandate. The PMR award is made after

extensive research in which numerous stakeholders are interviewed on their perceptions which are later independently evaluated. This evaluation process results in a score being allocated.

UMGENI WATER SCOOPS EXCELLENCE AWARDS

Umgeni Water once more scooped an award from one of the iconic academic institutions, the Mangosuthu University of Technology (MUT). Umgeni Water was recognised for its developmental zeal and passion for nurturing young talent by offering Work Integrated Learning (WIL) to students from various academic fields through a long-life partnership with MUT. Umgeni Water received the Honourable Mention Award by the Vice-Chancellor and Principal.

Umgeni Water hosted the MUT Work Integrated Learning students from across the disciplines of Analytical Chemistry, Chemical Engineering, as well as Civil Engineering. Through a partnership that is formalised with the MOU between Umgeni Water and MUT, as well as annual meetings between MUT and Umgeni Water, Sixty-Eight (68) students were hosted for the Work Integrated Learning at Umgeni Water and have been exposed to all facets of operation of water treatment plants.

The Umgeni Water/MUT partnership particularly targets students that have been waiting for Work Integrated Learning placement for more than two (2) years; thus, restoring their hope and enabling them to graduate.



Umgeni Water, being a state-owned utility, strives to provide training of the highest calibre that supports both personal and professional development of the students. Over the years, no less than 70% of Umgeni Water's intakes were offered contracts or even permanent employment positions at Umgeni Water. In 2015, Umgeni Water received national recognition for its partnership with MUT. The Mangosuthu University of Technology is proud to honour Umgeni Water, once again. Umgeni Water is well represented as one of our own, Mr. Linda

Vezi is the Chairman of the Advisory Board for Chemistry and Chemical Engineering and he has held this position for the past 10 years.

In attendance to receive the award on behalf of Umgeni Water were: Mr. Thulasizwe Shangase (Senior Manager: Human Resources), Mr. Victor Sibiya (WIL Supervisor), Mr. Linda Vezi (Metering Manager-North-West) and Mr. Mxolisi Ngcobo.





UMGENI WATER'S FIRST INTAKE OF THE TVET OCCUPATIONAL HEALTH AND SAFETY LEARNERS



Umgeni Water and uMgungundlovu Training Vocational Education Training (TVET) have embarked on an Engineering In-Service Trainee Agreement that provides up and coming students with Work Integrated Learning within Umgeni Water for a period of two (2) years. This training is an integral part of N6 Diploma Qualifications. uMgungundlovu TVET also requested Umgeni Water to take on Occupational Hygiene and Safety (OHS) trainees on a seven (7) months experiential learning period, which was agreed upon by management. Umgeni Water SHEQ Management team took the responsibility upon themselves to guide and support these learners. The programme is funded by the Department of Land Reform and Rural Development through the

Programme of Youth Intervention which they call 'Narysec'. On 16 March 2019, eight (8) students who formed the first batch of the Occupational Health and Safety trainees within the SHEQ Department of Umgeni Water completed their training, and these students could not stop praising Umgeni Water for the wonderful opportunity that they have been presented with. Their training programme started on the 01 September 2018 to 31 March 2019. Students are also given an opportunity to present their seven (7) months experience to a panel made up of the following people: uMgungundlovu Management represented by: Mr. M Sibisi, Umgeni Water W SHEQ Manager: Mrs. T Zulu, NT Graduate Trainee Programme Supervisor: Mr. V Sibiya

and the SHEQ Department of Umgeni Water. Even though the students were placed at different sites, it was evident in their presentations that they all had common areas of training such as:

- Hazard Identification & Risk Assessment;
- Incident Management,; and
- Contractor Management, (CPA programme made them to realise that the sky is the limit in this field).

Umgeni Water SHEQ Coordinators were very thankful for the chance given to them to be able to share the information with the young ones.

Contributed by:
Mr. Nkosiyabantu Victor Sibiya

LEADERS ARE NOT BORN -THEY ARE MADE



“Once the mind is stretched it can never return to its original dimension”, these wise words sum up the experience of being part of the Duke University and Young Professionals Leadership Development Programme. What an amazing experience it has been working with the Duke University and UWYPs. It has truly been a journey of self-discovery. This journey had a unique start for each individual.

Mine started on activation day, as I walked into a room with only 2 or 3 familiar faces, and had to do something that is terrifying to an introvert which was to “speed date”. At that moment I felt my knees weaken and the sentences in my head jumble up. We were given aids, but there I was, terrified. My biggest worry was whether I’ll be able to answer the questions that will be asked. I had always been afraid to voice out my opinion in a crowd, mainly because whatever I say is never what I am thinking. However, today I am able to stand and speak my mind using the tools gained through the journey.

On the other hand, my journey started on an equine farm, strange I know. We learnt that horses mirror the emotions and body language of humans allowing us to visualise how others perceive us and how our actions are being interpreted. We were taught that positional power and titles are irrelevant, because let’s be honest, status does not impress a horse. As we navigated through the course,

module by module, we grasped how it is all connected to form a bigger picture, and discovered where we fit in. We all had encounters that gave us a new perspective of our personal and professional lives. We realised that we need to be mindful, live in the moment, and that we need to slow down in order to speed up. It was a turning point once one realised that one cannot lead others unless they can lead themselves.

Then came a daunting task of being placed into groups with individuals we had just met, yet those same individuals became family by the time this journey had come to an end. We can now say that we know the true meaning of teamwork and what it takes to be part of a ‘pit crew’. We had to face difficulties as a team before we came to a place of performing at our best. Building on each other’s strengths and understanding one another, played a vital role in the completion of this programme. There was laughter and many tears shed as well as memories made, but most of all, we made friendships that



Equine Farm

will last a lifetime. Yes, there were many late nights at the office, but there are no regrets.

It was drilled into us that we should ask questions. This allowed us to build trust and resolve conflicts in a healthy manner. Our projects taught us how to strategise and to

always keep in mind the goals and objectives that Umgeni Water is striving to achieve. We dabbled in Finance, Operational Efficiency and Benchmarking Exercises which allowed our Action Learning Projects to become a reality.

In the last part of this journey we had realised how far we had really come, we reflected back by comparing how we had seen ourselves when we began the journey to how we saw ourselves when it was about to come to an

end.

We had grown and we were ready to move on from the things that held us back, and from the ashes of burnt regrets and fears rose young men and women who were ready to become game changers. Becoming global citizens and developing our own personal brand was such an empowering exercise. In the end, we all learnt that we are creative in our own ways and innovation is within each one of us, all we need to do is to tap into it.

We were given an amazing opportunity to develop the leaders hidden inside each of us. Duke's unique teaching style had us doing a double take at first; however, we can safely say that we will never look at life the same way again. We are equipped on how to approach management with new ideas and initiatives and how to see them through to reality. We are so proud of the work



Presentation Day

that we produced and delivered throughout this journey and it is one we are sure to never forget.

We have been equipped with these new skills, proved that we are more than capable of handling tasks bigger than just our individual departments and have developed and matured in our leadership abilities. So, Umgeni Water, helped us to put these skills to good use and showed us how we can tackle

future challenges that may arise within the organisation. We hope that all we have learnt will be put to good use and we look forward to taking Umgeni Water to the next level.

'IF IT DOESN'T ADD VALUE, IT'S WASTE.'

Henry Ford



Graduation Day

UMGENI WATER LENDS A HELPING HAND TO A 2018 MATRIC PUPIL

Umgeni Water responded positively in supporting a needy 2018 matriculant that obtained eight (8) distinctions. A 100% pass in Mathematics, a 97% pass in Physics, and a pass between 82%–99% for the remaining six (6) subjects. This young lady had little or no means of fulfilling her dream of becoming a doctor, until Umgeni Water stepped in.

SUBJECTS PASSED

- Isizulu - 82%
- English - 83%
- Mathematics - 100%
- Life Orientation - 81%
- Accounting - 89%
- Engineering Graphics and Design - 84%
- Life Sciences - 90%
- Physical Sciences - 97%



Ms. Londiwe Bhengu a sixteen (16) year old who completed her grade 12 at Velabahleke High School in Umlazi, South of Durban was admitted at University of Cape Town (UCT) where she is currently studying Medicine.

Umgeni Water was amongst a number of organisations and community members that responded to a social media request to contribute towards

the uplifting of a needy student's life. Upon investigations and interviews with the Londiwe's family and school teachers, Umgeni Water contributed in various ways, such as: provided Ms. Londiwe Bhengu with a return ticket to Cape Town, a travel luggage set, and a R10 000 cheque which was going to assist Ms. Bhengu to purchase her necessities, given her disadvantaged background.

Speaking to Ms. Londiwe Bhengu during the hand over, the Chief Executive, Mr. Thami Hlongwa congratulated Ms. Londiwe Bhengu for never giving up

on her dream of becoming a doctor, because of her family background, he also wished Ms. Londiwe Bhengu well on her new journey and emphasised the importance of always remembering where she comes from and where she wants to be in order to change her life for the better. Umgeni Water wishes Ms. Londiwe Bhengu all the best through her study period at UCT.



MADAKANE RIVER CLEAN UP

Umgeni Water supported the request for assistance by the Vukuzenzele Youth Development Group in Port Shepstone for a clean-up of the Madakane River located close to the Murchison Hospital outside Port Shepstone. The Vukuzenzele Youth Development Group consists of twenty (20) volunteer members involved in various environmentally related initiatives within the community. The identified spot was an illegal dumpsite for the



local community. The area was also overgrown with invasive alien plants that needed to be identified and removed. Through the partnership formed between Umgeni Water, the Vukuzenzele Youth Group, Ray Nkonyeni Local Municipality, and the Department of Economic Development, Tourism and Environmental Affairs, a successful clean-up of the area was achieved.



The clean-up, also included the area being cleared up of overgrown vegetation. A door-to-door awareness campaign was conducted whilst the clean-up was in progress. Community awareness was also conducted at the local hall to approximately 200 community members after the clean-up. Umgeni water sponsored the youth group with equipment that will ensure that they continue with their work; some of the items sponsored were: T-shirts, gumboots, tools and a chain saw.



Contributed by Sunita Doodnath



UMGENI WATER HOSTS THREE WATERING TABLES ON ROUTE OF THE DUZI CANOE RACE

Previously, the Duzi Canoe Race posed little challenges for canoeists; however, due to shortage of water, and effluents that are constantly being dumped into the river, causing pollution, the 2019 and the last three (3) years of the Duzi Canoe Race has posed major challenges for canoeists.

The Duzi Canoe Race 2019 took place on Thursday, the 14 February to Saturday the 16 February 2019, with the race starting at 06h00 a.m at Duzi house in Camps Drift, Pietermaritzburg, and finishing at Blue Lagoon in Durban. Over the three (3) days there were two (2) overnight stops, the first being at Nagle Dam and the second one at Inanda Dam.

Due to the water levels not being high enough, especially in areas that have big rocks along the river, a few paddles experienced terrible canoe damages.

Umgeni Water manned three (3) watering tables on two (2) consecutive days - one at Finger Neck and the second one at Clermont Pump Station in Clermont on Friday the 15 February and the third table at Burma Road at Inanda on Saturday the 16 February 2019.

To all Umgeni Water volunteers that assisted at the three (3) watering tables, the management team would like to express their thanks to them for their hard work and making sure that our brand is held in high regard.





WATER · AMANZI

SPRING MEADOW Dairy Farm

no limits

WATER · AMANZI

WATER · AMANZI

WATER · AMANZI



UMGENI WATER PARTICIPATES AT THE COMRADES MARATHON 2019

Umgeni Water continues to support the Comrades Marathon by manning a watering station at Alviston, in Drummond. The Umgeni Water helpers were made up of the Civil Department led by Mr. Langa Phalane and Pipeline Department led by Mr. Siphon Dlamini at Pineside, who were up during the early hours of the

morning bearing the cold morning weather to ensure that they fly the Umgeni Water Flag high.

Our appreciation goes out to everyone that worked hard the day before and on the day to make sure that the runners that came past our stand for refreshments were fully catered for. Not forgetting our very own Umgeni Water staff that participated in the race, for all your efforts; Congratulations, you really make us proud!

Mr. Edward Mothabi, winner of the Comrades 2019 (Men's Race) finished the race at 5:31:3; while Gerda Steyn finished in 5:58:53 leading the Women's Race. She made the 4th Fastest Women's Comrades time in history and the fastest up-run ever recorded.

Gerda Steyn finished 17th overall ahead of the likes of down-run record-holder Mr. David Gatebe and she takes home R500,000 for the race win and another R500,000 for smashing Elena Nurgalieva's up-run record by over ten minutes,

VIVA WOMEN POWER !!!!!





2019 WELLNESS DAY



On 21 and 22 February 2019, Umgeni Water Peer Educators through the Employee Relations section hosted a Wellness Day at Albert Falls (Inland Region) and Westville Sports Center (Coastal Region). The Theme for 2019 was “Healthy Lifestyle and Mental Wellness.”

Employee Mental Wellness is one of the critical influencers of achieving organisational objectives and enhancing creativity and improving employee morale. It assists in combating workplace issues such as absenteeism and lack of productivity. It was for this reason that a panel discussion was setup, with the aim of educating and

addressing employee concerns and queries around the subject matter.

The focus was around seven (7) dimensions of mental vitality which were addressed by various speakers as follows;

- Personal Branding by Lungelo Saule;
- Dietician and Image Consultant by Ella Ford;
- Financial Wellness by Ernest Dlamini from Lemas;
- Spiritual Vitality/Motivation by Thulasizwe Shangase;
- Motivational Talk by Mr. Eugene Silinda; and
- Relaxation & Leisure by Thembelihle Lubisi from World Ventures.

A host of exhibitors and service employees with various points of interest related to employee wellness were invited to assist.

Old Mutual/Liberty/ Avbob /Sanlam /Regent	Dennis
Metropolitan	Optometrist
Momentum – Disability Management	DBC
Psychological Impact Assessment – SHEQ Team	Toast Masters
BDG	Young Professionals
Bonitas	UW Sports Club
ER24 (emergency demonstration)	Debt Counselling
World Ventures (Holiday Club)	Stress Management(Massages)
Optician	Sanlam



HOW UMGENI WATER BURSARY SCHEME HELPED ME



My name is Siyabonga Thwala. I was born and raised in the rural area of Sweetwaters in Pietermaritzburg. My mother passed on when I was very young and my sister took on the responsibility of raising me. My sister did not have a good job, as she was working as a waitress at a restaurant. Due to my poor background, I never dreamt that one day I would attend university and obtain a degree.

My matric results were good; therefore, I decided to apply for a BSc. Degree in Microbiology at the University of Zululand. My sister sacrificed all the money she had for my registration. Even though I was able to register, I experienced a lot of financial difficulties in my first year. It got very difficult for me to proceed to the second year due to financial struggles so much so that I had given up on the idea of

continuing with my studies. Just when I was at the verge of losing hope, Umgeni Water visited the University of Zululand and gave a presentation on bursaries including what it offered and its requirements. With more than 100 students who applied for the bursary, I had very little hope of my application being successful.

In June 2014, Umgeni Water informed me that my application was successful for funding for the second year of my studies onwards. I was ecstatic and couldn't believe that I was chosen out of so many applicants. The bursary covered everything including food, stationary, tuition and accommodation. This allowed me to fully concentrate on my studies without any financial stress, as a result my marks improved.

This alleviated the financial burden on my sister as well. The bursary gave me an opportunity to gain industrial exposure at Umgeni Water Microbiology Laboratory during June and December holidays for the whole duration of the bursary support, which earned me an extra stipend. This exposed me to the working environment, which not too many students get exposure to. This proved to be rather beneficial as it gave me the opportunity to apply my theoretical knowledge to on hand applications.

The financial support I got from

Umgeni Water encouraged me to pursue my studies to a postgraduate level. Through, Umgeni Water's support I have completed a Bachelor of Science Honours Degree in Microbiology, and I am currently registered for a Master of Science Degree.

An extra-embedded benefit of this bursary scheme is the three (3) year Graduate Training Programme towards being registered as a professional Scientist, which I am currently involved enrolled in. I am highly indebted to Umgeni Water for making me realise my dreams. Umgeni Water has completely changed my life for the better and my family's lives have improved tremendously. I wish that this bursary scheme could continue to reach more young people who are struggling like I was.

My greatest goal is seeing myself working as a fully-fledged Scientist or in a Senior Scientific position within the Wwater Ssector.

Quote

"If you are born poor it's not your mistake, but if you die poor it's your mistake." Bill Gates

Contributed by
Siyabonga Thwala

MENTAL WELLNESS AWARENESS

According to the Anxiety and Depression Association of America, depression is the leading cause of disability worldwide. In today's fast-paced society, employees experience stress in the workplace on a daily basis.

Work stress combined with other mental health conditions, such as depression, impact on the productivity of employees. The South African Federation for Mental Health claims that nearly 75% of people with mental disorders remain untreated in developing countries with almost 1 million people taking their lives each year. In addition, according to the World Health Organization (WHO), every 1 in 13 individuals globally suffer from anxiety.

The WHO reports that anxiety disorders are the most common mental disorders worldwide with specific phobia, major depressive disorder and social phobia being the most common anxiety disorders. With work-related stress and healthcare costs on the rise, the need for organisational wellness cannot be overstated. Umgeni Water Peer Educators have realised that the key to a

successful organisation relies on effectively preventing and sufficient pro-activeness of chronic and lifestyle-related diseases, ensuring its impact is minimised.

Umgeni Water Peer Educators have committed to educating, empowering and encouraging individuals to manage their own health and well-being, as well as making use of preventative and disease management services and resources within and outside the organisation. The mental health and wellbeing of employees is critical for maintaining sustainable levels of employee engagement, resilience in the face of organisational change, motivation and innovation.

It is for this reason that the Umgeni Water Peer Educators saw it fit that the theme of this year's Wellness Day revolve around Mental Health. Umgeni Water as a progressive organisation understands that employee wellness is important to organisational success and a strategic and integrated approach to wellness is critical. Umgeni Water has two (2) Occupational Health Specialists i.e. Sister Xoliswa Makhaye (Inland Region) and Sister Lungile Dlamini (Coastal Region) who attend to all employees' health related issues and challenges.

Currently, there are Fifty-five (55) Peer Educators in Umgeni Water who are trained to counsel and assist employees with health related

information and knowledge. Over and above this, Umgeni Water has an Employee Assistance Programme (EAP) that is an UW employee benefit program that assists employees with personal problems and/or work-related problems that may impact their job performance, health, mental and emotional well-being. Confidentiality is very much critical in EAP and could include assessments, short-term counselling, referrals, and follow-up evaluations. To access EAP, our Occupational Health Specialists work in a consultative role with employees, employee reps (The Union), as well as line managers to address employee and organisational challenges and needs. (Read more about Employee Assistance Programme (EAP) on the intranet).

Cape Town Clinical Psychologist Diane Mallaby says that the question remains, “how do we turn this condition ‘learned helplessness’ around and transform it into ‘learned helpfulness’?” She continues to say that, it begins with the very basics, on a micro level, where each and every one of us can do something to change the way we think about the situations around us. What many of us forget is that the human brain is a masterpiece in natural engineering (a highly intricate and technologically advanced computer, if you will) that enables ordinary people to achieve great

results, even during times of extreme stress. The brain is ‘wired’ in such a way, that one cannot have two thoughts simultaneously. So, if we can ‘train’ our brains to immediately replace a negative thought with a positive thought, we will create new pathways in the brain, that will trigger new thought patterns, a bit like creating several ‘highways’ in the brain as a means of transporting messages (thoughts). You are not alone - for any more information and assistance please contact a Peer Educator near you.



Suicide Crisis Line
0800 567 567

SADAG Mental Health L
011 234 4837

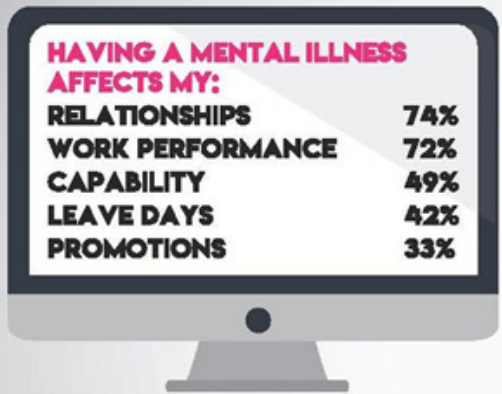
Akeso Psychiatric Resp

To find a Support Group in your area, please phone SADAG on 0800 21 22 23
For more assistance and information on Employee Wellness

Contact Person	Number	Title
Mr. Reuben Dlamini	1056/69880	Employee Relations Manager
Sister Xoliswa Makhaye	1130/68580	Occupation Health Specialist (Inland Region)
Sister Lungile Dlamini	7340/63970	Occupation Health Specialist (Coastal Region)
Ms. Thandeka Jwara	8053/64640	Chairperson: Peer Educators

MENTAL HEALTH & STIGMA IN THE WORKPLACE

79% FEMALE
21% MALE
59% AGED 31 - 50



2 IN 3 DISCLOSED THEIR MENTAL HEALTH CONDITION TO A CO-WORKER & **61%** DISCLOSED TO A MANAGER/SUPERVISOR



Taken time off work in the last 12 months for Mental Health reasons
56%
44%

I don't know of any colleague fired due to their Mental Illness
85%

I fear being discriminated against if I disclose my Mental Illness
19%



0800 70 80 80 | zame1@medport.co.za | www.sadag.org
 The South African Depression and Anxiety Group | @thesadag



Survey adopted from a study conducted in 2017 by the South African Depression and Anxiety Group (SADAG).
 Contributed by
 Thandeka Jwara

THE IMPLEMENTATION OF AN ENTERPRISE INFORMATION MANAGEMENT (EIM)

What is the project about?

This project was initiated to improve our approach to managing our information. It includes document management, record management, the archiving of records as well as employee collaboration. The project will focus on the implementation of an Enterprise Information Management (EIM) system able to manage physical (paper) records in addition to the conversion of paper formats to electronic format

(scanning). This will ensure that all Umgeni Water records are managed so that they retain their integrity, authenticity, reliability, and usability over time.

Where are we in the project?

We have completed the build and configuration phase and recently completed training with the core team and super users. User Acceptance Testing is in progress and is about 80% complete. Thereafter we will move into the Go Live phase which will involve training of end users,

installation of the application to all users, and business go live. There will be a post go live support phase which will be used to assist users with specific functions.

The picture below is a photo taken during model office that was held at Head Office. The purpose of this 3-day session is to demonstrate and highlight the values of the system while doing simple walkthroughs as part of change management.





UMGENI WATER MARATHON A GREAT SUCCESS

This year, Umgeni Water changed the marathon venue from the usual Midmar Dam, to Baynesfield Sport Club on route to Richmond for the first time in twenty (20) years since the race began at Midmar Dam. The new venue created a great experience for the runners, and various feedback was received from the runners. Loads of family-oriented games were provided

to keep children occupied; we also had a braai area where families could eat and relax whilst enjoying great company. A special thank you goes out to all Umgeni Water employees who participated in the race and we encourage those that did not participate to do so next year, not forgetting our volunteers for their sacrifice of family time to fly the Umgeni flag high. Below is a list of

all Umgeni Water participants and completing times. “It was a great experience and we loved it”, “it was a difficult course to run because of the gravel”, and “it was way too steep especially for the 42 km race because we had to repeat it twice”; these are some of the comments that was noted on the day of the run. And, our CE said that “it asked all the right questions.”







Race Winners

Umgeni Water Marathon

Hosted by Collegians Harriers and Howick AC

Category Winners 25 March 2018 42km

4:06:18	First name	Last name	Club	Finish time
1	Siphokuhle	Tshoba	Ixopo	2:32:55
2	Thobani	Chagwe	Maxed Elite	2:35:12
3	Nkululeko	Ngubane	Ixopo	2:36:37
Men 40-49				
1	Mofhethi	Mfeka	Kearsney	2:44:57
2	Kwakhiwakwano	Ngubane	Maxed Elite	2:47:14
Men 50-59				
1	Jabulani	Langa	Klipriver	3:19:40
2	Darryl	Trodd	Saints	3:23:13
Men 60+				
1	Vernon	Anley	DHS Old Boys	3:50:50

Women Open				
1	Lisa	Collett	Boxer	3:09:41
2	Nonsikelelo	Mbambo	Natal Carbineers	3:28:14
3	Thandiwe	Hlongwane	Maxed Elite	3:32:40
Women 40-49				
1	Lisa	Collett	Boxer	3:09:41
2	Judy	Stewart	Natal Carbineers	4:14:11
Women 50-59				
1	Erica	Walker	Hilton Harriers	4:02:49
2	Lizette	Botha	Run Walk for Life	4:32:41
Women 40-49				
1	Val	Watson	Runavation	4:06:18

Umgeni Water Marathon Hosted by Collegians Harriers and Howick AC

Category Winners 25 March 2018 32 km

Men Open	First name	Last name	Club	Finish time
1	Philani	Ngcobo	Collegians Harriers	1:56:44
2	Khayelihle	Ngcobo	GCA	1:58:33
3	Siphelele	Zondi	Maritzburg City	2:00:18
Men 40-49				
1	Msawenkosi	Mlaba	Nedbank	2:04:28
Men 50-59				
1	Lloyd	Broughton	Riverside Harriers	2:49:08
Men 60+				
1	Eric	Walton	Medihelp Multi Sport	3:52:06
Women Open				
1	Pat	Dammann	Vitality	2:37:58
2	Erika	Bondesio	Vitality	
3	Charlotte	Raw	Save Orion	2:55:12

Women 40-49				
1	Pat	Dammann	Vitality	2:37:58
Women 50-59				
1	Debra	Kruger	Ingwenya SAPS	3:09:26
Women 60+				
1	Jenny	Taylor	Run Walk for Life	3:01:26

Umgeni Water Marathon Hosted by Collegians Harriers and Howick AC

Category Winners 25 March 2018 15 km run

Men	First name	Last name	Club	Finish time
1	Msawenkosi	Mthalane	Mr Price	0:49:31
2	Lizwi	Mbuyisa	Loskop Gijimas	0:50:32
3	Nduku	Mdakane	Loskop Gijimas	0:51:58
Junior Boys				
1	Phendukani	Gama	Loskop Gijimas	0:54:12
2	Sneliso	Sithole	Loskop Gijimas	0:56:33
Women				
1	Nontobeko	Mlambo	Loskop Gijimas	1:03:55
2	Xoli	Madida	Natal Carbineers	1:05:26
	Minenhle	Mncube	Loskop Gijimas	1:07:18
Junior Girls				
1	Minenhle	Mncube	Loskop Gijimas	1:07:18
2	Miransa	Mazibuko	Loskop Gijimas	1:14:35

DELOITTE CHALLENGE RACE

Some Umgeni Water employees participated in the Deloitte Challenge Race on the 17 March 2019 in Durban, and look at what we found, check out the CE's funky pants below)

Results for: Deloitte Challenge (Durban - 17/03/2019)

User Defined Search Query:

Search for
 Search in
 From Place

Chose Race Data:

Distance
 Category
 Batch

Gender:

Male
 Female

By clicking on your name listed below you can go directly to your personal results.

5 participant(s) matching your search query

Place	Race No	Name	Club/Team/Nation	Time
1	5306	Angus Nicoll	UMGENI WATER AC	1:55:16
2	5161	Mxolisi Mhlongo	UMGENI WATER AC	2:10:24
3	3634	Thami Hlongwa	UMGENI WATER	2:16:59
4	3634	Thami Hlongwa	UMGENI WATER	2:16:59
5	3658	Malungi Madlala	UMGENI WATER AC	2:55:37

Results for: Deloitte Challenge (Durban - 17/03/2019)

User Defined Search Query:

Search for
 Search in
 From Place

Chose Race Data:

Distance
 Category
 Batch

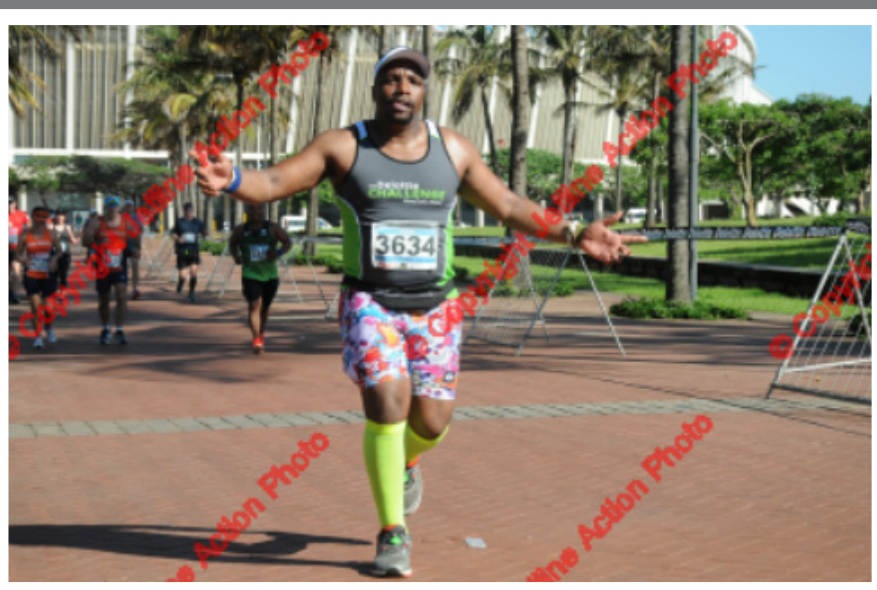
Gender:

Male
 Female

By clicking on your name listed below you can go directly to your personal results.

1 participant(s) matching your search query

Place	Race No	Name	Club/Team/Nation	Time
1	536	Ayanda Tiba	UMGENI WATER AC	1:33:08



UMGENI WATER DEVELOPING THE SKILLS FOR THE WORKFORCE

As a retention strategy, Umgeni Water remains committed to achieving positive results and providing opportunities to improve the quality of the employees' working lives, gear people with multi-skills necessary for the entity's sustainability and future world of work. Employees on Assisted Education Scheme seems to work harder towards achieving their goals and dreams. With the graduation session in motion, it is exciting

to present two (2) of Umgeni Water Assisted Education beneficiaries who have successfully completed and graduated for their qualifications: Philisiwe Hlongwane: An Administrator in the Project Office based at the Head Office, graduated on 8 April 2019 at the University of KwaZulu-Natal with a Postgraduate Diploma in Management. Philisiwe Hlongwane proved to be a go-getter, a motivator, as this is her second qualification through the entity's Assisted Education Scheme. In 2016, she

obtained her B-Tech in Public Management from the Durban University of Technology. She encourages fellow colleagues to make use of such great opportunities and appreciates the continued space provided by the organisation for employees to use the workplace as an active learning environment.



"I would like to take this opportunity and express my gratitude for the financial support provided through the Assisted Education Programme. Thank you for the investment to your employees. I count myself lucky to work in an organisation like Umgeni Water."



Nonjabulo Zondi: A Superintendent from Lower Thukela Water Works graduated on 5 April 2019 at the University of KwaZulu-Natal with a Postgraduate Diploma in Leadership.

Nonjabulo Zondi is a true inspiration as she is a mother of four (4) beautiful kids, wife and Superintendent. She proved that with true dedication and commitment, anyone has

the ability to develop themselves provided they plan their time well and remain focused to achieving their goals. For Nonjabulo Zondi it was also not the first time she took advantage of this opportunity as she graduated in 2011 at the Durban University of Technology with a B-Tech in Management qualification. This is a clear indication that the sky is the limit to her success as she once again did the grand march for her graduation at UKZN this year.

The organisation congratulates all those who have completed their studies and encourages everyone to make use of the available opportunities for their development. We are the drivers of our destinies. Umgeni Water invests in Talent – Umgeni Water invests in YOUR future. “Education is the most powerful weapon which you can use to change the world.” Nelson Mandela
Contributed by
Nothile Hlombe

UWYPS HOST A CAREER DAY AT KWAHLABISA

Umgeni Water Young Professionals (UWYPs), in conjunction with the Department of Education (uMkhanyakude District) and Rand Water, embarked on a career exhibition in KwaHlabisa, in the uMkhanyakude District Municipality, KwaZulu-Natal, on 5 and 6 April 2019. 599 Grade 12 learners attended the career exhibition from seven (7) different high schools within the district. This event was a Corporate Social Investment (CSI) initiative that is included in the UWYPs annual calendar; which seeks to recognise

and increase the knowledge base of the critical skills that are required in the water sector. This initiative is done to introduce Grade 12 learners to the different career paths and opportunities available within Umgeni Water and the water sector as a whole.

The initiative was a fruitful two (2) day event. Day one (1) included presentations by the young professionals from the respective divisions within Umgeni Water, and highlighted the bursary, learnerships and other opportunities available from both Umgeni Water and Rand Water. The presentations also

featured a speaker from Umfolozi TVET College showcasing their programs on offer and entrance requirements. Day two (2) provided career guidance and online registration of the learners to the institutions of higher learning across South Africa.

The UWYPs Executive would like to extend their gratitude to the different stakeholders, Umgeni Water Management, and volunteers from the UWYPs forum for making this event a success.

“Education is for improving the lives of others and for leaving your community and world better than you found it.” Marian Wright Edelman



Figure 1: Mr. Zakhele Dube Introducing the Program.

Figure 2: Ms. Thandeka Jwara (UWYPs President) Motivating the Learners.



Figure 3: Ms. Mpume Njoko Interacting with the Learners.

Figure 4: Ms. Nqobile Mkhize Highlighting the Path to Finance.



Figure 5: Representative from Rand Water Presenting on the Different Opportunities at Rand Water.



Figure 6: Ms. Puleng Mbhele on a One-on-One Interaction with a Learner on Course Choices.



Figure 7: UWYPs President with Some of the Educators from the Different Schools.



Figure 8: YPs Assisting the Grade 12 Learners with Online CAO Applications.



MANDELA PROJECTS HANDLED OVER

Umgeni Water continues on its drive to hand over the remaining projects which started last year. There were projects identified by divisions within Umgeni Water, which were implemented by the Brand & Marketing team within Corporate Services. Some of the projects handed over included:

KWADABEKA OLD AGE HOME

Umgeni Water is a caring organisation that shows compassion and respect to all the communities where it conducts its business of treating and supplying water to municipalities so that consumers can receive water when they open their taps. To prove this, the Chief Executive and his Executive team handed over fifty (50) lockers, and an industrial washing machine to assist all the care-givers that are looking after the elderly at this home. The official hand over took place on the 18th of March 2019.



CLERMONT YOUTH CENTRE

Umgeni Water sponsored the Youth Centre also supported by the Department of Sports and Youth Development, which is one of the most successful youth centres operated by youth. Their main focus is to develop and train other youth within their area, so that they are able to get a Basic Computer, Administration, Photography, Graphic Design, and Music Recording Certificate(s).

The handover of this project was done by the Executive of Finance on behalf of the Chief Executive, including Acting Executive of Corporate Services Thulasizwe Shangase on the 22nd of May 2019.



DURWEST PRIMARY SCHOOL

The Durwest Primary School, which is in Reservoirs Hills in Durban, caters predominantly for children from Clermont, KwaDabeka and surrounding areas. This school was identified as one of the schools that required assistance with regards to providing a permanent shaded area for learners during their lunch break time and aftercare. This project was handed over on 22 May 2019 by the Executive of Finance, Nomalungelo Mkhize, and some of the CSI committee members.



HARRY GWALA YOUTH DEVELOPMENT

Umgeni Water supported two (2) youth groups that were identified by the District Municipality as promising Youth owned co-ops in the area. One of the co-ops specialises in brick production, Umgeni Water therefore supported them with brick laying machines, jojo tanks, wheelbarrows and spades. The second group, which specialises in tree cutting services was provided with chain saws, gumboots, hard hats and gloves. This project was officially handed over on 21 May 2019 by Sbusiso Mjwara and some of the CSI committee members.



THE 2019 ROYAL AGRICULTURAL SHOW

Umgeni Water formed part of many companies that were present at the 2019 Royal Agricultural Show, our stand showcased the organisation's mission through the demonstration of Umgeni Water Sludge System Model, which caught a lot of attention to mainly high school children that visited the show. The water education

specialists held educational classes for all schools that wanted to learn more about the importance of water, the process of water purification, and the importance of keeping our rivers and streams clean. The aim of these educational talks is to educate and ignite change in the mindset of the youth, with the intention of changing the behavior of the youth towards Water Resource Management and to enlighten the

youth, ensuring they understand the huge role they play in tackling water issues in schools and within communities that they live in.



MSUNDUZI RIVER WALK

Umgeni Water and other water stakeholders namely Duct, EDTEA (Economic Development Tourism and Environmental Affairs), University of KwaZulu-Natal and community members, participated in a three day river walk that was organised by the Msunduzi Catchment Management Forum with support from DUCT (Dusi Umgeni Conservation Trust), Centre for Water Resources, and the Independent Association for Impact Assessments South Africa.

The river walk covered three 5 km river stretches whereby the first river walk took place on 3 April starting at the Henley Dam wall. The second walk took place on the 4 April from Ashdown / Caluza Bridge and the last one took place on the 5 April from the New England's Landfill site entrance in close vicinity of the low-level bridge in Woodhouse Road.

The purpose of the river walk was to raise awareness about the state

of the Msunduzi River and highlight the long journey ahead to improved water quality in the Msunduzi River. The objective of the river walk was to change the mindset, attitude and behavior of people including the participants towards Water Resource Management and to help participants and civil society understand they have a huge role to play in tackling water issues in their communities.

To achieve this, each river walk started with an initiation meeting, which highlighted the purpose, and the objectives of the river walk. During the initiation meeting the River Walk facilitator urged participants to ensure that during the river walk they look out for various aspects that could be contributing to significant environmental and water resources impacts on the Msunduzi River. Amongst other aspects, participants were asked to look out for the presence and location of alien

plants as they have negative effects on rivers in terms of stream flow reduction.

It was also highlighted that solid waste in the rivers and river banks have negative impacts on rivers and these include river pollution, changing the characteristics of the river and can also divert the flow of rivers which has significant impacts on the downstream water users. What was also interesting during the river walk was to hear participants sharing their stories about how they don't just end by cleaning the river and removing the alien plants, but that they also go door to door in their communities, creating awareness to community members about Waste Management, alien plants and how the larger communities can take ownership of the rivers in their communities and participate in taking care of them. Please refer to the Photo log in Figures 1, 2 and 3 for the three (3) days of the river walk.



Figure 1: Photo Log of the Msunduzi River - River Walk

Minni SASS Testing by DUCT



Figure 2: Photo Log of Day 2 of the Msunduzi River - River Walk

Minni SASS Testing, Interpreting and Presenting the Results.



Figure 3: Photo Log of Day 3 of the Msunduzi River - River Water

Contributed by
Penny Gumede

WATER WEEK 2019: UMGENI WATER SPREADS THE WORD AND TAKES ACTION!

National Water Week is an annual event that focuses around the public's attention on the importance of water, one of South Africa's most limited resources. The theme for this year is "Water for All, Leaving No One Behind."

In South Africa, Water scarcity is aggravated by the increasing demand due to economic and population growth, urbanisation and rising standards of living, unsustainable use and high levels of wastage and loss, pollution (which renders water unfit for use), reduction of the security of water supply due to the degradation of wetlands, changes in rainfall patterns due to climate change

and increasing temperatures also driven by climate change.

We need to focus on Water and Sanitation Management, Infrastructure Investment, Access to Water for all by 2030, Climate Change and Drought, Alternate Sources, Water Conservation and Transformation in the Water Sector to ensure that water resources do not continue to benefit the select few members of the society.

We need to share information and take action. Information may be shared using social media and other media channels to spread the word as well as by engaging your friends and contacts with information and stories about the reality of the water crisis and how it affects

everyone and everything in the world. We can take action by planning and participating in river clean ups, protecting and rehabilitating Wetlands, implementing water saving initiatives and gathering people together to share ideas that could make a difference to people living without safe water.

Through, the actions taken by the Water and Environmental Education Team, Umgeni Water successfully shared information on Water Awareness to schools and communities. This was achieved by presentations at schools, industries and tertiary institutions as well as Educator and Community Workshops. The pictures highlight the activities conducted by the Water and Environmental Education Team.



Career Expo in Pietermaritzburg.



Educators Workshop.



Mariathal Combined Primary.



Nonzila Primary.



Trustfeed Combined Primary.



Albert Falls Primary.



Samsung Plant at Dube Trade Port.



Bathengi Primary.



Cottonlands Primary.



Thumbela Primary.



Ogunjini Primary.



Umkomaas Drift Primary



Fairview Community Workshop.



Fairview Community Workshop.



Ndaya Primary.



Ithenjane Primary.



Ewubini Primary.



Naidoo Memorial Primary.



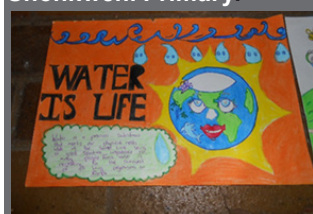
Mangosothu University of Technology Environmental Health Students.



Holiday Programme at Inanda Dam.



Shonkweni Primary.



Stanger Primary.



Contributed by
The Water & Environment Education Team

CLIMATE CHANGE

Climate change is usually associated with an increase in temperature and unpredictable weather conditions. These impacts are likely to affect the ecosystem and biodiversity across the globe. The climate change system could affect human society in every aspect; from the air, quality of potable water, how food is grown, and how the future cities are built in order to adapt to climate change.

Unpredicted rainfall patterns could reduce fresh water supplies. There is a huge water scarcity in South Africa particularly in rural communities, and is likely to get worse in some municipalities. Higher rainfall

or drought in other areas and rising of sea levels could lead to flooding which may damage the state of the art infrastructure, destroy agricultural crops and cause catastrophic-loss of lives.

South African Development Community (SADC) has experienced extreme flooding recently, which led to high risk of water borne diseases such as cholera and malaria (flood water also provided ideal conditions for vectors such as mosquitoes).

The graph below indicates the latest global average tropospheric temperature from 1979 to 2019. According to Rebecca Lindsey et.al (2018), 2017 recorded the warmest non-El Niño year. (Non-El Niño colder water in the Eastern Tropical Pacific Ocean).

Scientists from the Internal

Panel on Climate Change (IPCC) predicted that by 2050, temperature will rise by about 3.6° Celsius, when compared with the temperature from 1986 to 2005. By 2100, temperature could be about 6 - 7° Celsius warmer.

Some of the common causes of the climate change are from greenhouse gases from electricity generation, agriculture, transportation, manufacturing, buildings and various other sources.

To mention a few challenges, cattle are a huge source of methane; deforestation since it becomes harder to remove carbon dioxide from the air, and the burning of trees/biomass release more carbon into the atmosphere.

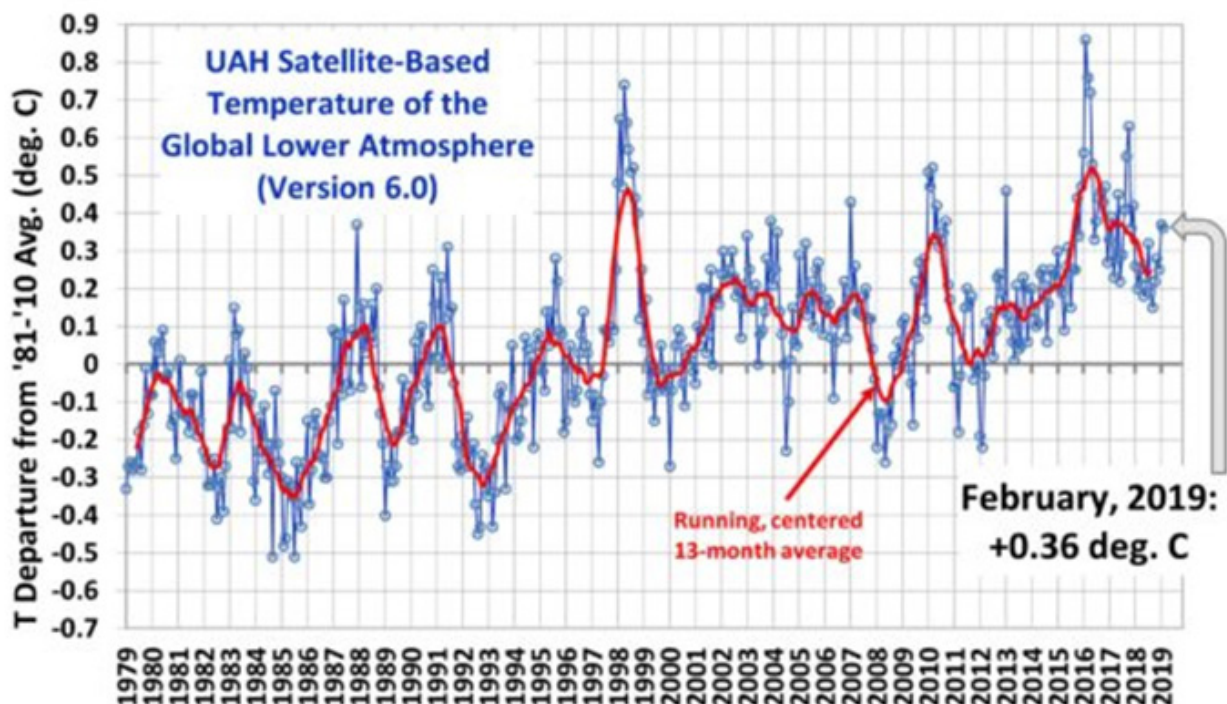


Figure 1: UAH Satellite-based Temperature of the Global Lower Atmosphere.



Proposed solutions and a way forward, are as follows:

Renewable energy: move away or consume less fossil fuel and invest more on renewable energy like solar, wind, biomass and most importantly prevent the waste of energy;

- Energy and water efficiency: reducing the consumption of energy and water by utilising more energy efficient devices (LED light bulbs, innovative shower system, etc);
- Suitable transportation: promoting use of public transportation, use of bicycles to work, can reduce carbon dioxide emission in the atmosphere;
- Sustainable infrastructure: it is necessary to build new low energy buildings and upgrade existing buildings. Most buildings have air conditionings that are high energy consumers. Similarly heaters, lights and other appliances places high demand on energy consumption. To invest in efficient windows for natural light and proper insulation, would reduce the carbon dioxide emission;

- Sustainable agriculture: sustainable use of natural resources and reducing deforestation; and
- Responsible consumption & recycling. Last but not least, it is recommended that meat and dairy products be consumed at low rate. And, recycling is absolutely necessary to promote environmental sustainability.

Innovative thinking and use of new technologies can contribute to creating a favourable environment for the next generation.

Contributed by
Mcebo Mkhize & Dr Wilson John

NEW ANALYTICAL TECHNOLOGY AT HEAD OFFICE LABORATORY

Introduction

Umgeni Water's core business is to treat raw source water to potable standards, as per the South African National Standards (SANS 241: 2015) drinking water quality guidelines (SANS 241: 2015). The Head Office Laboratory is ISO 17025-accredited to carry out the required physico-chemical tests, e.g., turbidity, pH, anions, etc.

Aim

High levels of anions in water can be toxic: e.g., nitrate can affect the ability of oxygen transport in the human body; chloride can impart a salty/unpleasant taste to the water and can cause hypertension, etc.; elevated

nitrate levels in water may suggest the possible presence of other pollutants, such as pathogens, pesticides, or other contaminants that could adversely affect human health.

The quantification of anions in drinking water is one of the test requirements of the SANS 241: 2015 guidelines; the acceptable limits are: ≤ 300 mg/L for chloride (Cl⁻), ≤ 11 mg/L for nitrate (NO₃⁻), ≤ 0.9 mg/L for nitrite (NO₂⁻), and ≤ 250 mg/L for sulphate (SO₄²⁻).

A Waters Ion Chromatograph (IC), with Conductivity Detector, being fairly old (≥ 15 years) is currently being used to analyse and quantitate the target anions (chloride, nitrate, nitrite, sulphate) in drinking water. This current test method is based

on the use of a large volume of organic solvent and has a long Chromatographic run time (over 20 minutes total) for elution of the four (4) target anions.

The market was therefore investigated to find a suitable replacement IC, and one that would also address some, if not all, of the shortcomings noted with the current equipment

Discussion

The new IC is a Dionex ICS 5000 model (Suppressed Ion Chromatograph), with a Dionex CD 20 Conductivity Detector, in combination with a Dionex AERS 500 Carbonate Suppressor (4 mm), from Thermo Fischer. Figure 1.



Figure 1: The New Suppressed Ion Chromatograph - Conductivity Detector System at Head Office Laboratory: Chemistry.

It was purchased during 2018, to address some of the above disadvantages noted with the old Waters IC equipment.

The test method was developed, optimised and validated on the new Thermo IC, using a Dionex Ion Pac ASS22-fast 4 μ m particle analytical column (4 x 150 mm), with an AG22-fast 4 μ m guard column (4 x 30 mm), at 30°C 9 (isocratic, flow rate of 1.2 mL/min.) as per the laboratory's internal procedure for test method validation. The eluent (mobile phase) used is carbonate (4.5 mM sodium carbonate and 1.4 mM sodium bicarbonate).

Results

The observed retention times, at a flow rate of 1.2 mL/min, were: chloride at ± 2.78 min, nitrate at 3.23 min, nitrate at ± 4.37 min and sulphate at ± 6.87 min for a "low range" standard. Figure 2.:

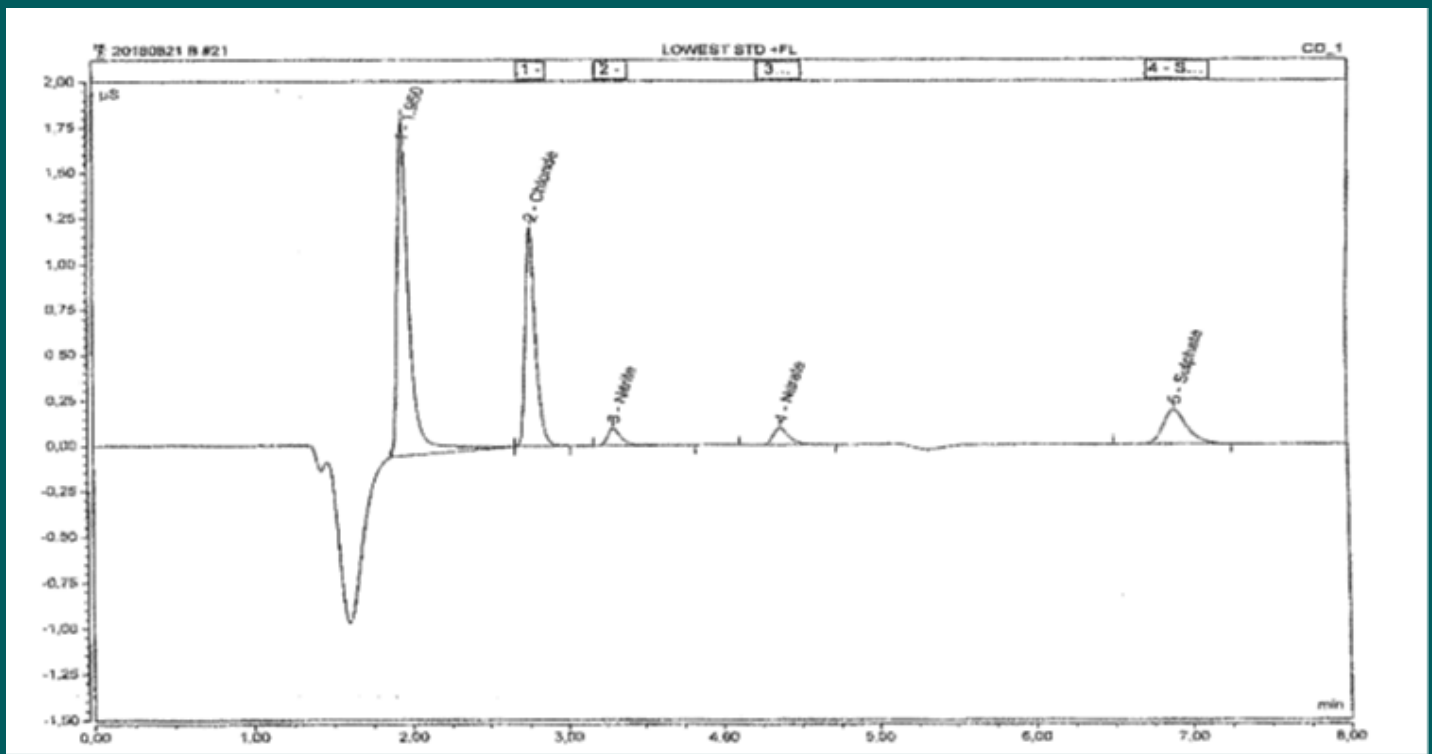


Figure 2: Chromatogram of a Low Range Standard of the Target Anions.

Thus, all four (4) target anions were fairly well resolved and eluted within 8 min. Over the analytical range covered: chloride: 1-100 mg/L, nitrate/nitrite: 0.05 to 5 mg/L and sulphate: 0.5 to 50 mg/L, the validated LOQ was: 0.025 mg/L for chloride, 0.025 mg/L for nitrate and nitrite and 0.25 mg/L for sulphate. The sample scope included drinking, raw, waste water and trade effluent. Recovery ranged from 87-107%. The method was found to be precise and accurate; the Uncertainty of Measurement (UM) was estimated to be < 5% for all four (4) anions.

Discussion

The various hardware components, and the software, of this new IC, contributes to overall improved productivity, expanded capabilities and improved performance.

The Suppressor is placed between the Analytical Column and the Conductivity Detector.

Some advantages / features of the new IC/Suppressed Ion Chromatography Technology. (Specific to this application)

- A reduction in elution time for the target anions—less than ten (10) minutes as compared to the previous test method (over twenty (20) minutes);
- A decrease in the background conductivity of the eluent thereby increasing the detection/ sensitivity of the measurement / analysis;
- Minimised baseline noise; and
- Elimination of the use of large amounts of potentially toxic organic solvents—a subsequent cost reduction, and reduced/lower waste removal costs.

Some key, general:

- “Just-add-water” technology: allows several months of continuous operation with just two litres of water;
- Reagent-free Ion Chromatography: for hydroxide, carbonate and MSA eluents—offer high purity, control, reproducibility for isocratic and gradient elutions;
- High pressure operation for fast IC/analyses;
- High resolution;
- Eluent Generator: robust electronics provide extremely stable baseline and precise gradient generation;

- Eluent Regeneration: a single preparation of eluent can be used for up to four (4) weeks;
- Electrolytic Suppressor: regenerates returning eluent as it suppresses eluent before detection;
- Excellent flow rate accuracy;
- Integrated Detector/Chromatography Module: with precisely controlled temperature zones maintains baseline stability and increases application flexibility;
- Conductivity Detector: is volume optimised; does not require a heat exchanger;
- Modular Design—for adaptability/upgradability;
- Dual channel analysis—both anions and cations can be analysed;
- Automation Manager: simplifies and automates complex applications; and
- Software: Chromeleon Chromatography Data System Software unifies and simplifies system control, operation, data collection and reporting.

Conclusion

A new test method for the target anions: chloride, nitrate, nitrite and sulphate, in various water matrices, was fully developed and validated, as per ISO 17025 accreditation requirements, on the new, “Suppressed Ion” Dionex ICS 5000 Ion Chromatograph. The test method was deemed to be fit-for-purpose: toward testing of drinking water quality as per the national regulations.

Dionex ICS 5000 “Suppressed” Ion Chromatograph for analysis of anions in potable / drinking water studied by T Manickum, T Khumalo, S Qegu, and M Malungana.

References

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2. SANS 241 - 1: 2015 Edition 2. SOUTH AFRICAN NATIONAL STANDARD, Drinking Water, Part 1: Microbiological, Physical, Aesthetic and Chemical Determinands. SABS, ISBN 978-0-626-29841-8.
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Dionex ICS-5000+ HPIC System, Modular High-Pressure Ion Chromatography System, 1-20. Thermo Fisher Scientific Inc., 2012.



2019 YOUNG PROFESSIONAL REBOOT SESSION WINNERS: TEAM CYBANATICS

“As the Manager of the Engineering Service, it is my honour to say congratulations to the winning team at the Young Professionals Reboost.”
The Engineering Service Team has development programs within the department that are aimed at grooming the young professionals within

the department thus empowering them to offer great value to the organisation and society.
On 19 June 2019, young professionals within the Engineering Services Department participated in a Reboot Challenge setup by Umgeni Water Young Professionals, where individuals had to work in groups made up of members from different disciplines and backgrounds.

The group competition winning team members used the skills of working in groups; such as: time keeping using management knowledge and presentation skills to achieve first place out of ten (10) groups participating in the Reboost Challenge.



NEW AUTOMATED SAMPLE EXTRACTED SAMPLE TECHNOLOGY (SPME) AT HEAD OFFICE LABORATORY

Introduction

Umgeni Water's core business is to treat raw source water to potable standards, as per the South African National Standards (SANS 241: 2015) drinking water quality guidelines (SANS 241: 2015). The Head Office Laboratory, ISO 17025 - accredited for the bulk of the regulated tests, is able to carry out the required physico-chemical tests, e.g., phenols, tri-halomethanes, Total Organic Carbon (TOC), etc.

The taste and odour of drinking water should be acceptable to the majority of consumers. Odour-causing compounds can find their way into drinking water from a number of sources. Odours with a "musty" character are often attributed to chemical by-products from several classes of microbes. One of the most common compounds causing a "musty" or "earthy" smell is geosmin, which is released when microbes such as blue-green algae and actinobacteria

die. Other well-known odour-causing compounds that originate from natural sources include 2-methylisoborneol (2-MIB) and methoxypyrazines. Many of these compounds are of interest since they have very low odour thresholds. Many people are able to detect them at concentrations as low as 10 parts per trillion (ppt = ng/L). Since these odorants have sensory thresholds in the ppt range, it is important to have a sensitive analytical method capable of detecting them at these trace levels.

Both geosmin and 2-MIB are tertiary alcohols whose structures make them resistant to oxidation, a process routinely applied in water purification. Increase in chlorination merely results in a strong chlorinous taste and odour and also produces a host of chlorination by-products such as tri-halomethanes. The taste-odour compounds are generally prevalent in water during summer.

Whilst the current SANS 241 for drinking water quality does not

specify any quantitative limits, testing for the presence of the common taste-odorants: geosmin and 2-MIB, in raw and potable water is currently undertaken by the Chemistry Laboratory, Head Office. The internal limits for the Umgeni Water catchments is ≤ 5 ng/L concentration in raw and drinking water for these two compounds.

Aim

The current test method used at the Chemistry Laboratory involves liquid-liquid sample extraction, with organic solvent, followed by rotary evaporation, reconstitution of the remaining, dried extract in solvent, and final analysis of an aliquot by Gas Chromatography-Mass Spectrometry (GC-MS), in the Selected Ion Monitoring (SIM) mode. This current test method extraction is manual, extremely time-consuming, labour-intensive and uses potentially toxic organic solvent (methylene chloride) for the extraction of the target analytes from the water matrix. Methylene chloride is known to have associated health risks and is a potential carcinogen.

The market was therefore investigated to find a suitable alternative extraction technique, technology or equipment, that is fairly sensitive, accurate, and precise and that will provide for rapid analysis for these target compounds, and thus assisting toward water quality assessment for compliance.

Discussion

The new GERSTEL MultiPurpose Sampler (MPS), supplied and commissioned by LECO, during February 2019, was installed on a routine GC-MS, as shown in Figure 1 below:



Figure 1: The New GERSTEL Multipurpose Sampler (MPS), Installed onto an Agilent Gas Chromatograph-Mass Spectrometer, at Head Office Laboratory: Chemistry.

Discussion

The MPS robotic is a highly efficient GC-MS auto sampler with extended robotic functionality, for all five (5) Sample Introduction Techniques: Liquid, Headspace, Solid Phase Micro-Extraction (SPME), Dynamic Headspace and Thermal Desorption.

Some key features of the LECO GERSTEL MPS Sampler: SPME sample extraction option

- The MPS completely automates SPME analysis including fibre conditioning, sample extraction, fibre desorption and fibre exchange;
- The LECO Sampler is compatible

with most standard GCs—like the current Agilent GC at Head Office Laboratory;

- The MAESTRO software can be fully integrated into operation with the Agilent ChemStation or GC MassHunter software;
- The unique GERSTEL Agitator Stirrer provides sample agitation with stir bars, accelerating the extraction process and improving throughout; and
- The Sampler can accommodate a variety of sample volume vials: 2, 10, 20 and 100 mL.

Proposed investigation

The proposed plan by the Laboratory is to test the automated SPME extraction technique for the analysis of geosmin and 2-MIB in water. For example, a SPME fibre containing DVB/Carboxen/PDMS, will be used to extract the target analytes out of the water matrix (± 10 mL sample volume), followed by desorption. These processes will occur on the GERSTEL MPS Sampler (“on-line”), followed by standard desorption of the extracted analytes from the fibre, and subsequent separation and detection by GC-MS.

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- 1 Umgeni Water, Laboratory Services, SANAS (P) drive, Manuals, Method Manual, Sections, Chemistry, Current, Method 26 Geosmin and 2-methylisoborneol, Ed/Rev: 02/01, 15/10/2003.
- 2 SANS 241-1: 2015 Edition 2. SOUTH AFRICAN NATIONAL STANDARD, Drinking water, Part 1: Microbiological, Physical, Aesthetic and Chemical Determinants. SABS, ISBN 978-0-626-29841-8.
- 3 J Binkley, Analysis of Trace Odorants in Drinking Water by Headspace-Solid Phase Microextraction-Gas Chromatography-Time of Flight Mass Spectrometry, Form No. 203-821-386 (2012), Life Science & Chemical Analysis Centre, LECO Corporation, Saint Joseph, Michigan USA/LECO Life Science and Chemical Analysis Solutions.
- 4 GERSTEL MultiPurpose Sampler product application note: location: http://www.gerstel.com/pdf/s00135-038-02_MPS-robotic-en.pdf,
- 5 GERSTEL MultiPurpose Sampler specifications. location: http://www.gerstel.com/pdf/MPS2XL_Spec_en.pdf

THE E-BEE DRONE IS THE LATEST TOY FOR SERVITUDE MONITORING

The protection of Umgeni Water's servitudes is of great importance which is why Infrastructure Development has invested in a toy that will ensure efficiency in the monitoring of servitudes.



SenseFly eBee Drone Servitude Monitoring

Introduction

What is a drone? According to the South African Civil Aviation Authority (SACAA) a "Remotely Piloted Aircraft Systems" (RPAS) or a drone means an unmanned aircraft which is piloted from a remote pilot station. It can also be described more formally as unmanned aerial vehicles (UAVs) or unmanned aircraft systems (UASes).

Essentially, a drone is a flying robot. Drones may be remotely controlled or can fly autonomously through software-controlled flight plans in their embedded systems working in conjunction with onboard sensors and GPS.

In the recent past, drones were most often associated with the military, where they were used initially for anti-aircraft target practice, intelligence gathering and then, more controversially, as weapons platforms. Drones are now also used in a wide range of civilian roles ranging from search and rescue, surveillance, traffic monitoring, weather monitoring and firefighting to personal drones and business drone-based photography, as well as videography, agriculture and even delivery services.

Umgeni Water's Asset Management Department acquired a state of the art drone in 2017 to assist in the monitoring, policing and inspection of servitudes for encroachment, illegal

connection and vandalism on remote infrastructure.

Applicable Legislation

Growth in commercial and personal drones has created numerous safety concerns, namely midair collisions and loss of control. This has resulted in stricter controls and regulations in terms of drone uses.

All drones/Remotely Piloted Aircrafts (RPA) must be registered and may only be operated in terms of Part 101 of the South African Civil Aviation Regulations, 2011.

In accordance with Part 101.02.4(1) of the Civil Aviation Regulations, 2011, “No remotely piloted aircraft (RPA) shall be operated within the Republic of South Africa, unless such RPA has been issued with a certificate of registration by the Director.”

Equipment

Description of the Umgeni Water Drone

The aircraft acquired is a Fixed Wing SenseFly eBee with onboard digital camera, sensors and GPS similar to the one on the cover page.

Test Flight

A test run/survey was conducted on the Richmond Pipeline from the Richmond Pump Station to Lillifontein Reservoir for servitude encroachment. The survey took place on 19 and 23 July 2018.

The total length of the surveyed pipeline was about 6km. The survey produced excellent results as illegal connections, major leaks and servitude encroachment were picked up. The photos below show the quality of photos taken by the drone at about 150m above ground.

Conclusion

The results from the first test flight clearly show that the drone is an excellent investment which can yield positive results in a very short space of time. It must also be noted that the uses of this drone are limitless as it can be used in a number of applications by just using a different camera.

Some applications include measuring cut and fill volumes, conducting precise pre- and as-built surveys, detecting leaks using thermal cameras and inspecting crucial infrastructure.

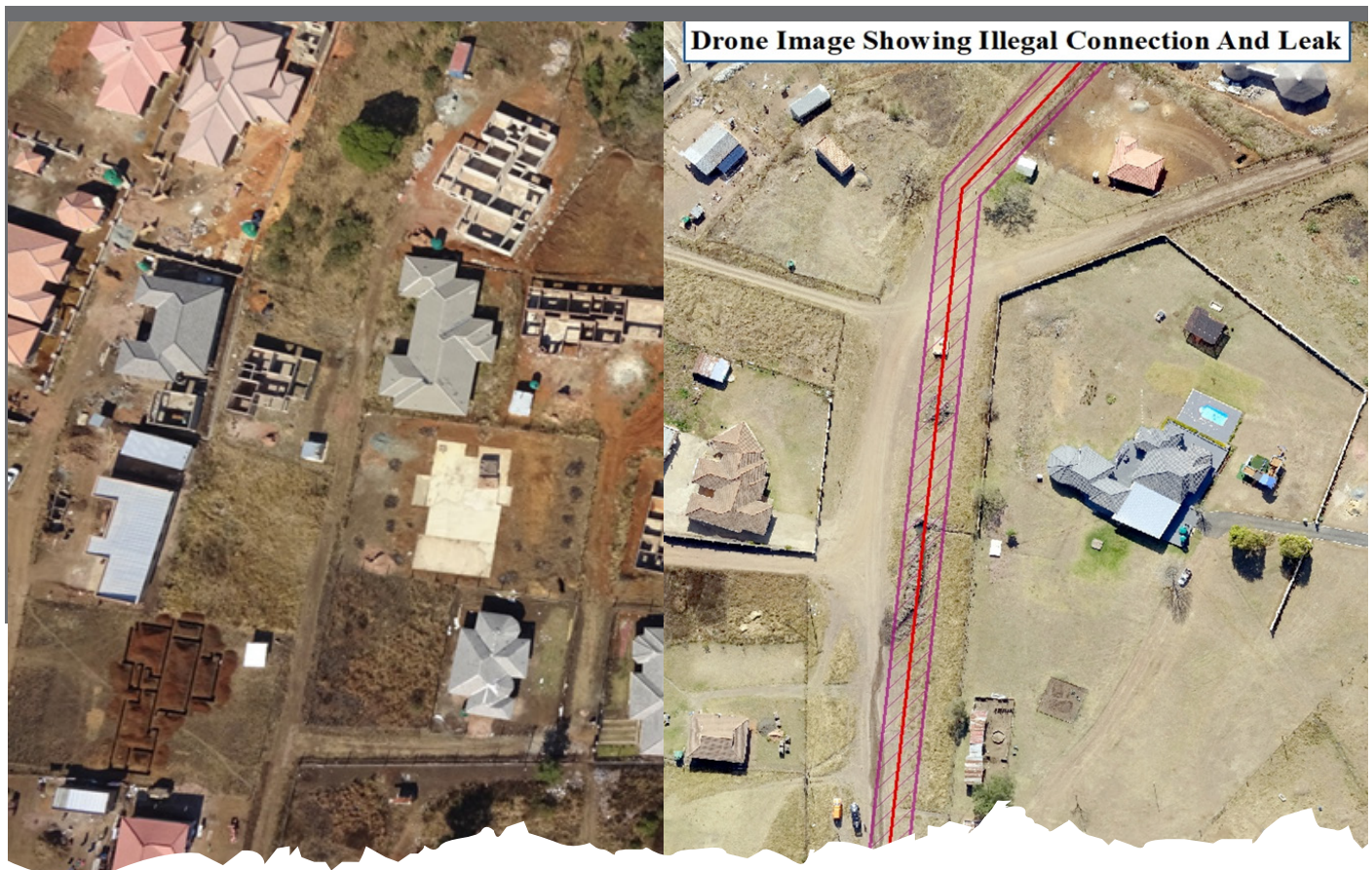


Figure 4.4 Typical image taken at about 150m above ground.

Figure 4.7 Zoomed-in image showing possible illegal connection and a leak.

CLASSIFIED

NEW APPOINTMENT

To all staff that have been appointed between January to June 2019, Welcome and we wish you a wonderful stay within the Umgeni water family.

First name	Last name	Start Date	Name of Org Unit	Division	Name of Employee Group
Suleman	Badat	2019/05/03	UW Board	Board Members	Board Member
Mduduzi	Zakwe	2019/05/03	UW Board	Board Members	Board Member
Simosenkosi	Chamane	2019/05/03	UW Board	Board Members	Board Member
Bongekile	Zulu	2019/05/03	UW Board	Board Members	Board Member
Linda	Ngcobo	2019/05/03	UW Board	Board Members	Board Member
William	Mapena	2019/05/03	UW Board	Board Members	Board Member
Thandwa	Mthembu	2019/05/01	UW Board	Board Members	Board Member
Brenda	Sithole	2019/05/01	ICT Operations	Corporate Services	Permanent
Phindile	Zungu	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Blessing	Mayeza	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Sikhumbuzo	Gumede	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Sinenhlanhla Nomfundo	Nkwanyana	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Cyncol	Sibiya	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Wamkelwe	Mbatha	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Sibonelo	Masuku	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Senzo	Khuzwayo	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Andile	Nxumalo	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Nozizwe	Nyewula	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Nhlakanipho	Khumalo	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Wendy	Lushozi	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Mihlali	Sontundu	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover

First name	Last name	Start Date	Name of Org Unit	Division	Name of Employee Group
Thulisa	Ndlebe	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Zandile	Khoza	2019/02/01	National Treasury	Corporate Services	Contractors - Takeover
Trevor	Maphumulo	2019/04/01	National Treasury	Corporate Services	Fixed Term
Patrick	Oneill	2019/01/07	Talent & Organisational Dev	Corporate Services	Trainees
Sazi	Mathonsi	2019/02/01	Talent & Organisational Dev	Corporate Services	Trainees
Phumlani	Mhlanga	2019/02/01	Talent & Organisational Dev	Corporate Services	Trainees
Nokwanele	Mtshali	2019/02/01	Talent & Organisational Dev	Corporate Services	Trainees
Msizi	Ndabandaba	2019/02/01	Talent & Organisational Dev	Corporate Services	Trainees
Samukelisiwe	Gumede	2019/03/01	Talent & Organisational Dev	Corporate Services	Trainees
Innocent	Mazibuko	2019/04/08	Talent & Organisational Dev	Corporate Services	Trainees
Silindile	Ngcobo	2019/05/01	Talent & Organisational Dev	Corporate Services	Trainees
Acknowledge	Ntsele	2019/04/15	Client Services	Engineering & Scientific	Fixed Term
Xolani	Dubazane	2019/01/01	Project Office	Engineering & Scientific	Fixed Term
Ntokozo	Nzama	2019/05/01	Social Development	Engineering & Scientific	Fixed Term
Sithembiso	Kheswa	2019/05/01	Social Development	Engineering & Scientific	Fixed Term
Simpbiwe	Ndlovu	2019/01/01	Inventory Control Ulwandle	Finance	Permanent
Mpumelelo	Dlamini	2019/01/01	Supply Chain Management	Finance	Fixed Term
Nobuhle	Madonsela	2019/04/01	Supply Chain Management	Finance	Permanent
Ntombizethu	Buthelezi	2019/05/01	Supply Chain Management	Finance	Permanent
Mthokozisi	Masinga	2019/02/01	Project Office	Infrastructure Dev	Fixed Term
Mfundo	Buthelezi	2019/04/01	Electrical/Instrument South	Operations	Fixed Term
Lungile	Mposula	2019/02/01	North(Civil/Mech)Workshop	Operations	Fixed Term
Nkulukeko	Makhaye	2019/02/01	North(Civil/Mech)Workshop	Operations	Fixed Term

First name	Last name	Start Date	Name of Org Unit	Division	Name of Employee Group
Sandile	Ngcobo	2019/04/01	Hazelmere Water Works	Operations	Permanent
Snethemba	Mthethwa	2019/04/01	Instruments Central	Operations	Permanent
Orisson	Kunene	2019/01/07	Midmar System	Operations	Permanent
Maria	Thwala	2017/07/01	Olifantskop Water Works	Operations	Permanent
Nokubonga	Shabangu	2019/03/01	Operations Izintaba Global	Operations	Permanent
Thobile	Makhatini	2019/01/01	Spring Grove Dam	Operations	Permanent
Isaac	Gamede	1992/01/12	Ezakheni Water Works	Operations	Permanent - Takeover
Osborn	Khumalo	2003/11/01	Ezakheni Water Works	Operations	Permanent - Takeover
Simon	Dubazana	2008/08/01	Ezakheni Water Works	Operations	Permanent - Takeover
Manqoba	Sibisi	2006/05/03	Ezakheni Water Works	Operations	Permanent - Takeover
Bethuel	Zulu	1990/03/01	Ezakheni Water Works	Operations	Permanent - Takeover
Bhekinkosi	Majola	2006/05/03	Ezakheni Water Works	Operations	Permanent - Takeover
Nazir	Hoosen	2013/05/01	Ezakheni Water Works	Operations	Permanent - Takeover
Nkosiyezwe	Khumalo	2009/03/01	Ezakheni Water Works	Operations	Permanent - Takeover
Nkosinathi	Sibeko	2004/12/01	Ezakheni Water Works	Operations	Permanent - Takeover
Zodwa	Mlele	2004/12/01	Ezakheni Water Works	Operations	Permanent - Takeover
Bonani	Mbatha	2017/07/01	Olifantskop Water Works	Operations	Permanent - Takeover
Bonginkosi	Dube	2006/05/03	Olifantskop Water Works	Operations	Permanent - Takeover
Zakhele	Mbokwane	1992/04/01	Olifantskop Water Works	Operations	Permanent - Takeover
Nhlanhla	Thungo	2011/06/01	Olifantskop Water Works	Operations	Permanent - Takeover
Nduku	Hlatshwayo	2017/07/01	Olifantskop Water Works	Operations	Permanent - Takeover
Lamulile	Twala	2017/07/01	Olifantskop Water Works	Operations	Permanent - Takeover
Mshiza	Nkosi	2017/07/01	Olifantskop Water Works	Operations	Permanent - Takeover

First name	Last name	Start Date	Name of Org Unit	Division	Name of Employee Group
Thokozani	Ndawo	2004/12/01	Olifantskop Water Works	Operations	Permanent - Takeover
Senzangakhona	Thusi	2006/05/03	Olifantskop Water Works	Operations	Permanent - Takeover
Mboneni	Mtshali	2018/09/01	Olifantskop Water Works	Operations	Permanent - Takeover
Ayanda	Magudulela	2018/09/01	Olifantskop Water Works	Operations	Permanent - Takeover
Malwandle	Duma	2018/09/01	Olifantskop Water Works	Operations	Permanent - Takeover
Zizwe	Dlamini	2016/07/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Felokwakhe	Mvelase	2009/03/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Busisiwe	Chule	2016/07/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Sizwe	Dladla	2007/08/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Ntombikayise	Nkala	2011/05/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Bonokwakhe	Mncube	2017/07/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Nomzamo	Madondo	2018/09/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Mthandeni	Xaba	2018/09/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Mhlabunzima	Xaba	2012/09/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Makhosonke	Masoka	2017/07/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Nhlanhla	Sithole	2017/07/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Madoda	Magubane	2017/07/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Mzikayifani	Zwane	2016/08/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Mgezeni	Mbata	2016/08/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Phelelani	Mungwe	2017/02/01	Tugela Estate Water Works	Operations	Permanent - Takeover
Nkululeko	Sigwaza	2019/05/01	Electrical/Instrument South	Operations	Trainees

DEATHS

We would like to take this opportunity to express our sincere condolences to the family and friends of those who have passed on; may their souls rest in peace.

Organisational Unit	Personnel Number	Gender Key	Start Date	Job	Reason for Term	Leaving Date	Contract Type
Inanda Dam	Mrs./Ms. Kwenzekile Khanyle	Female	1986/09/01	General Worker	Deceased	2019/01/12	Permanent
Vehicles Workshop	Mr. Sibusiso Njapha	Male	1991/06/01	Maintenance Assistant	Deceased	2019/03/07	Permanent



Compiled and designed by Brand and Marketing department

Improving Quality of Life and Enhancing Sustainable Economic Development

